



National
Library
of Medicine



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search <input type="text" value="PubMed"/>	<input type="button" value="for"/>						<input type="button" value="Go"/>	<input type="button" value="Clear"/>
		Limits	Preview/Index	History	Clipboard	Details		
		<input checked="" type="radio" value="Display"/> Display <input type="radio" value="Abstract"/> Abstract <input type="button" value="Show: 20"/> Show: 20 <input type="button" value="Sort"/> Sort <input type="button" value="Send to"/> Send to <input type="radio" value="Text"/> Text						

Entrez PubMed

1: J Neurochem. 1997 Mar;68(3):1244-51.

[Related Articles](#), [Links](#)



Inhibition of the high-affinity brain glutamate transporter GLAST-1 via direct phosphorylation.

PubMed Services

Conradt M, Stoffel W.

Institute of Biochemistry I, Medical Faculty, University of Cologne, Germany.

Related Resources

Neurotransmission at excitatory glutamatergic synapses is terminated by the reuptake of the neurotransmitter by high-affinity transporters, which keep the extracellular glutamate concentration below excitotoxic levels. The amino acid sequence of the recently isolated and cloned brain-specific glutamate/aspartate transporter (GLAST-1) of the rat reveals three consensus sequences of putative phosphorylation sites for protein kinase C (PKC). The PKC activator phorbol 12-myristate 13-acetate (PMA) decreased glutamate transport activity in *Xenopus* oocytes and human embryonic kidney cells (HEK293) expressing the cloned GLAST-1 cDNA, within 20 min, to 25% of the initial transport activity. This downregulation was blocked by the PKC inhibitor staurosporine. GLAST-1 transport activity remains unimpaired by phorbol 12-monomyristate. Removal of all putative PKC sites of wild-type GLAST-1 by site-directed mutagenesis did not abolish inhibition of glutamate transport. [³²P]Phosphate-labeled wild-type and mutant transport proteins devoid of all predicted PKC sites were detected by immunoprecipitation after stimulation with PMA. Immunoprecipitation of [³⁵S]methionine-labeled transporter molecules indicates a similar stability of phosphorylated and nonphosphorylated GLAST-1 protein. Immunofluorescence staining did not differentiate surface staining of HEK293 cells expressing GLAST-1 with and without PMA treatment. These data suggest that the neurotransmitter transporter activity of GLAST-1 is inhibited by phosphorylation at a non-PKC consensus site.

PMID: 9048771 [PubMed - indexed for MEDLINE]

<input checked="" type="radio" value="Display"/> Display	<input type="radio" value="Abstract"/> Abstract	<input type="button" value="Show: 20"/> Show: 20	<input type="button" value="Sort"/> Sort	<input type="button" value="Send to"/> Send to	<input type="radio" value="Text"/> Text
--	---	--	--	--	---

L Number	Hits	Search Text	DB	Time stamp
7	10	inorganic NEAR phosphate NEAR transporter	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:31
1	27	inorganic NEAR phosphate NEAR transport\$	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:55
13	1793	pc12 NEAR cells	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:55
19	102	glutamate NEAR transport	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:56
25	0	(glutamate NEAR transport) same (pc12 NEAR cells) same (inorganic NEAR phosphate NEAR transport\$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:56
31	1	(glutamate NEAR transport) and (pc12 NEAR cells) AND (inorganic NEAR phosphate NEAR transport\$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:59
37	2	(glutamate NEAR transport) and (pc12 NEAR cells)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:59
-	3	vglut or vglut1 or vglut2 or vglut3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/21 10:29
-	157559	vessicular glutamate receptor	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 13:16
-	2	vesicular NEAR glutamate NEAR transporter	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 15:42
-	13	bnpi	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 16:43
-	74	dnp <i>i</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 16:43
-	30428	transporter	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 16:43
-	1	dnp <i>i</i> near transporter	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/07/17 16:43